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STOP GULLIES SAVE YOUR FARM



GULLIES CAN BE STOPPED OR HEALED

STOPPING a gully commonly means checking it from further active erosion—not filling it up. Simple methods of stopping gullies in the central part of the United States have been found that can be applied easily on the farm.

Many farmers have at times worked hard cutting trees or brush and thrown them down loosely into gullies in a sincere but ineffective effort to stop erosion. But the water has gone on steadily cutting deeper, and rain, frost, and wind have kept on cutting the gully wider. Much time, labor, and money have thus been wasted in efforts to stop more of the farm from washing away.

Gully erosion may be checked in several ways. A simple way is to “heal” the gullies by establishing a protective cover of trees, vines, or grasses over the surface. In “healing” or stopping the gullies, the necessary steps are (1) construct temporary check dams in the gully to catch up loose soil in which to plant trees, vines, or grasses; (2) slope the banks to an angle of repose (about 30 percent), which will also serve to put into the gully topsoil necessary for stimulating good growth; (3) plant trees, vines, or grasses selected for their ability to grow quickly and spread their roots in the soil and their tops over the soil; and (4) protect the vegetative cover from fire, livestock, and overcutting. In shallow, short gullies it will often be unnecessary to build any check dams except at or around the gully head or heads—the most critical point in an active gully.

STOP GULLIES—SAVE YOUR FARM

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BEFORE AND AFTER STOPPING A GULLY



F-40081A, F-236643

FIGURE 1.—A, Building a brush dam is the first step in healing a farm gully. Dams should be well built to avoid being undermined or cut out at the ends (western Tennessee). B, The same dam a few years later. The gully has been completely "healed" by planting black locust trees and protecting them from fire and livestock. Broomsedge grass, lespedeza, and other plants have come in.

HOW TO STOP OR HEAL GULLIES

Have you watched gullies eat into your fields or pastures and wished you knew how to stop them?

Many farmers have thrown brush, wire, or even old automobile bodies into gullies in an effort to stop them and yet have seen the gullies eat further up into their farms.

There is a way to stop or heal gullies and large washes that any farmer can successfully follow, even including the case of the occasional huge gully.

Washes and small gullies in fields or pastures can be filled up at small expense and the land saved or reclaimed for use in crops or pasture. The soil must be carefully worked and terraced if it is in fields, or sodded if in pastures. With a little attention the soil in large gullies can be kept from breaking out and washing, and the gully be put to profitable use.

Gullies on the farm are like sores on the body—both can be healed. Gullies, large and small, can be healed successfully by restoring a protective vegetative cover. For hundreds of thousands of years in the past, trees, shrubs, vines, and grasses have grown and formed a protective cover over the soil. Washes or gullies did not begin until this natural protective cover was cut away, killed by fire, or eaten out by livestock. Bad cultivation speeded it up.

The secret, therefore, of healing gullies is either to give nature a chance to reestablish some vegetative growth or, quicker and surer, to plant trees, vines, grasses, legumes or other plants, and protect them from fire, overcutting by man, and overgrazing by livestock.

The secret of stopping gullies lies in healing the surface, particularly the heads and banks where soil erosion is going on most actively.

The necessary steps for healing gullies are: (1) Build small check dams; (2) slope off the steep banks and get topsoil behind the dams and on the gully slopes; (3) plant trees, shrubs, vines, or grasses; ¹ and (4) protect all vegetative growth from fire, the ax, and livestock. Dams will be unnecessary in short, shallow gullies.¹

The aim of this publication is to tell farmers how they can stop or heal their gullies by the method of establishing stands of trees, vines, or grasses as a protective soil cover.²

¹ This method has been applied on a practical scale since 1914 in western Tennessee.

² Reference should be made to Farmers' Bulletin 1697, Using Soil-binding Plants to Reclaim Gullies in the South. Reclamation of gullies for cultivation, by brush dams or where required by more elaborate structures, is explained in Farmers' Bulletin 1234, Gullies: How to Control and Reclaim Them. Use of terraces for protecting cultivated lands against erosion is described in Farmers' Bulletin 1669, Farm Terracing.

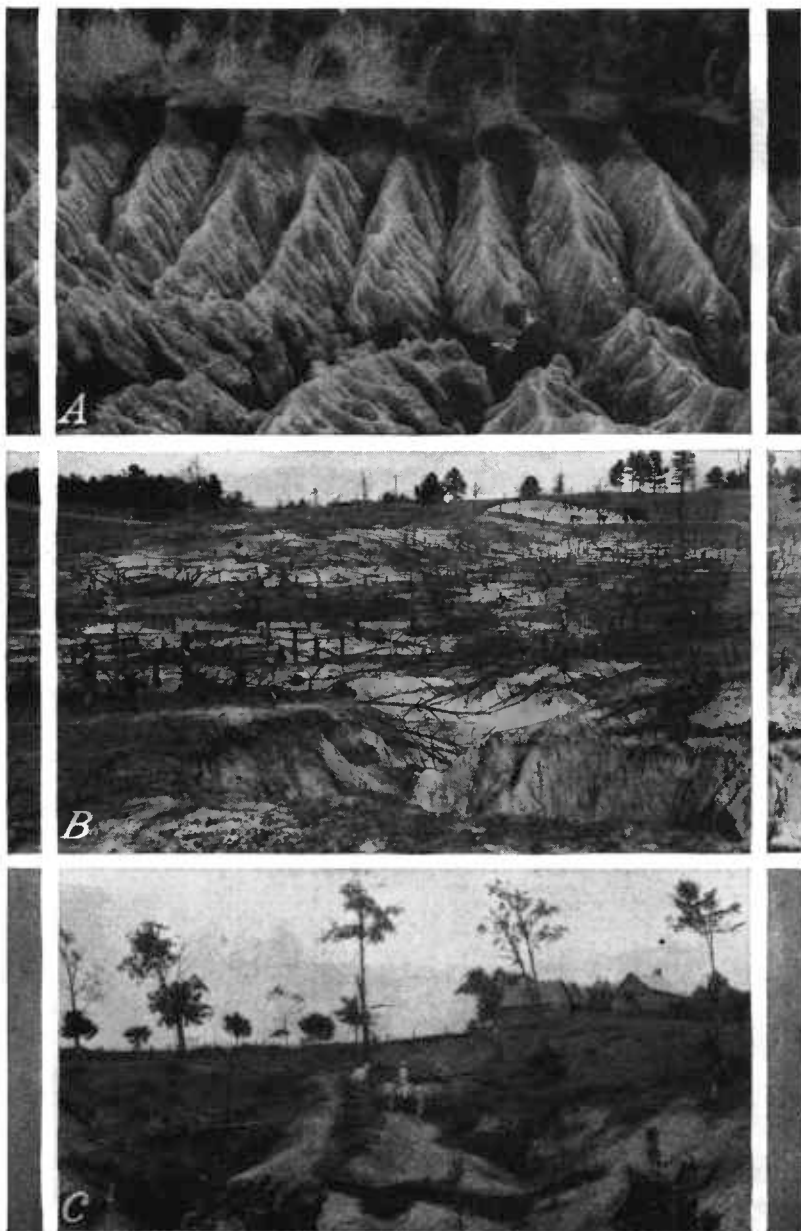
GULLIES, GULLIES, GULLIES



F-242955, F-40117A, F-39339A

FIGURE 2.—*A*, State highway that is dangerous to travel because it is almost engulfed by a huge gully on each side. *B*, Farm home that will probably soon be abandoned on account of the approaching gully. It started in a road which ran down the hill. *C*, Thousands of acres of good land have been eaten away in the midst of farm fields. The owners have to pay taxes upon their impoverished farms.

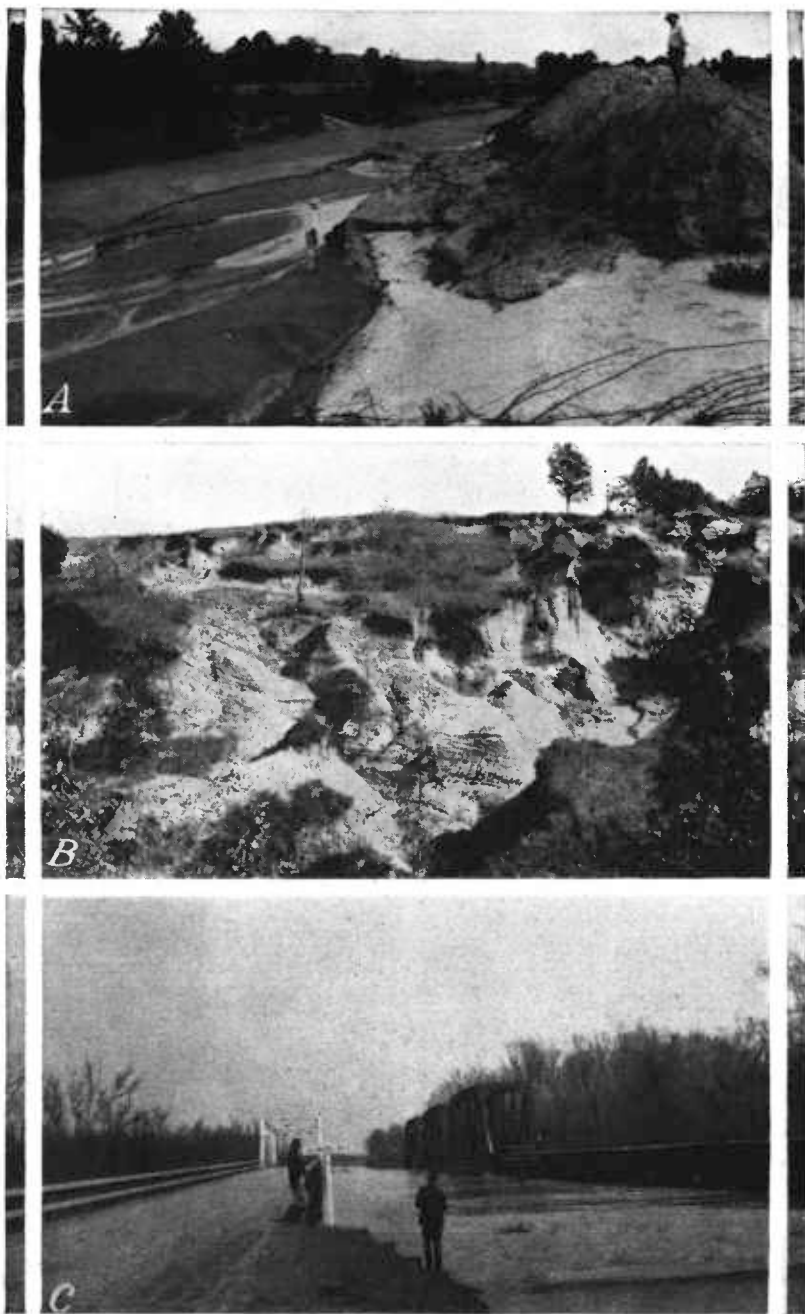
BAD PRACTICES THAT CAUSE GULLIES



F-244512, F-254767, F-260214

FIGURE 3.—A, This is not a sleet storm on tree branches, but the result of bad cultivation practices. Cotton and corn were planted in rows up and down the hills instead of on the contour or level. Vast gulying in the Southern States has been started in this way. B, Cutting the trees, burning the land, and allowing cattle to graze the existing forage have been important causes of washing and gulying. A vegetative cover is nature's prime protection for the soil. C, Overgrazing by livestock is one of the prevailing causes of erosion and gulying such as has taken place on this farm hillside near the house and barn.

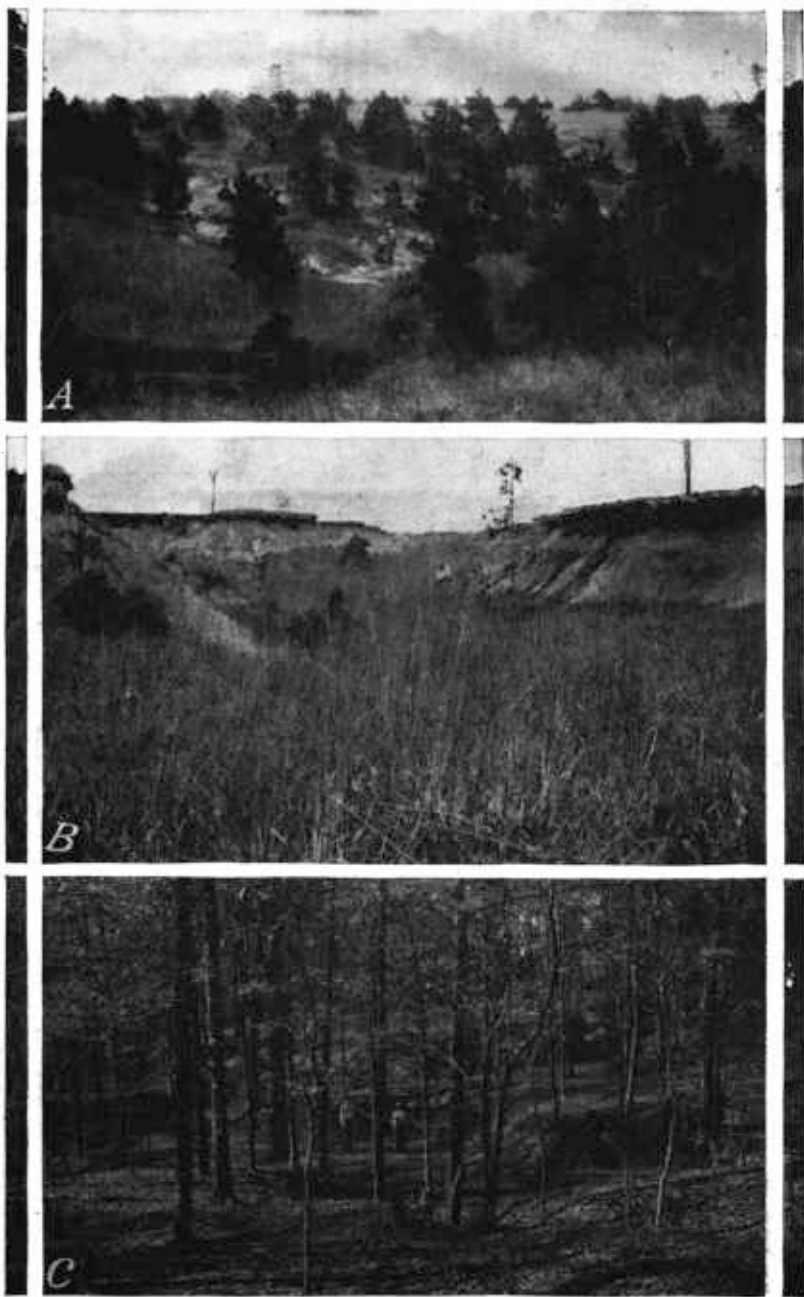
SOME RESULTS OF EROSION



F-247067, F-239616, F-244007

FIGURE 4.—*A*, Bottom-land fields are buried and water-drainage channels are completely choked with silt and sand from eroding gullies. *B*, Fields ruined by soil erosion which might have been stopped. The land is now a liability to the owner and will likely revert to the county or State because of delinquent taxes. *C*, Often one quarter of the volume of floods is due to the load of silt and sand held in suspension or carried along the stream bottoms. Water channels clogged with eroded material also greatly increase the height of floods. Floods will decrease if our lands are rightly handled and kept from eroding.

HOW NATURE HEALS GULLIES



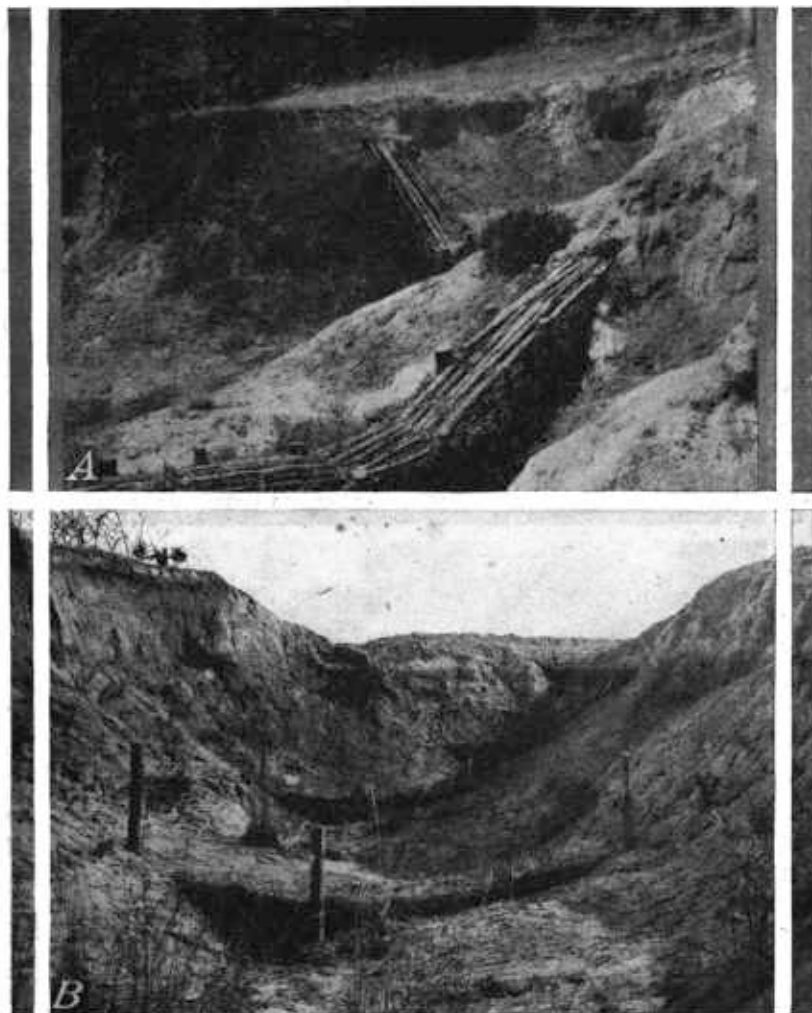
F-239632, F-242986, F-273540

FIGURE 5.—A, As the result of keeping out fire and giving nature a chance this abandoned field is coming up to shortleaf yellow pine. A common and costly mistake of some farmers is to cut trees growing in or near gullies and throw them loosely into the gullies. Trees are a means of permanently holding the soil in place. B, Sometimes gully bottoms heal over with grasses and vines when adequately protected from damage from fire and the overgrazing of livestock. The banks, however, may erode away. C, A formerly eroding field now fully held by a stand of elm trees that came up voluntarily.

HEALING GULLIES WITH TREES, VINES, AND GRASSES

THE FIRST STEP—BUILD CHECK DAMS

Brush if laid compactly and staked will stop downward cutting and catch up topsoil in which the trees or grass, or both, are to be planted. Dams should slope downward to a low place in the middle and seldom

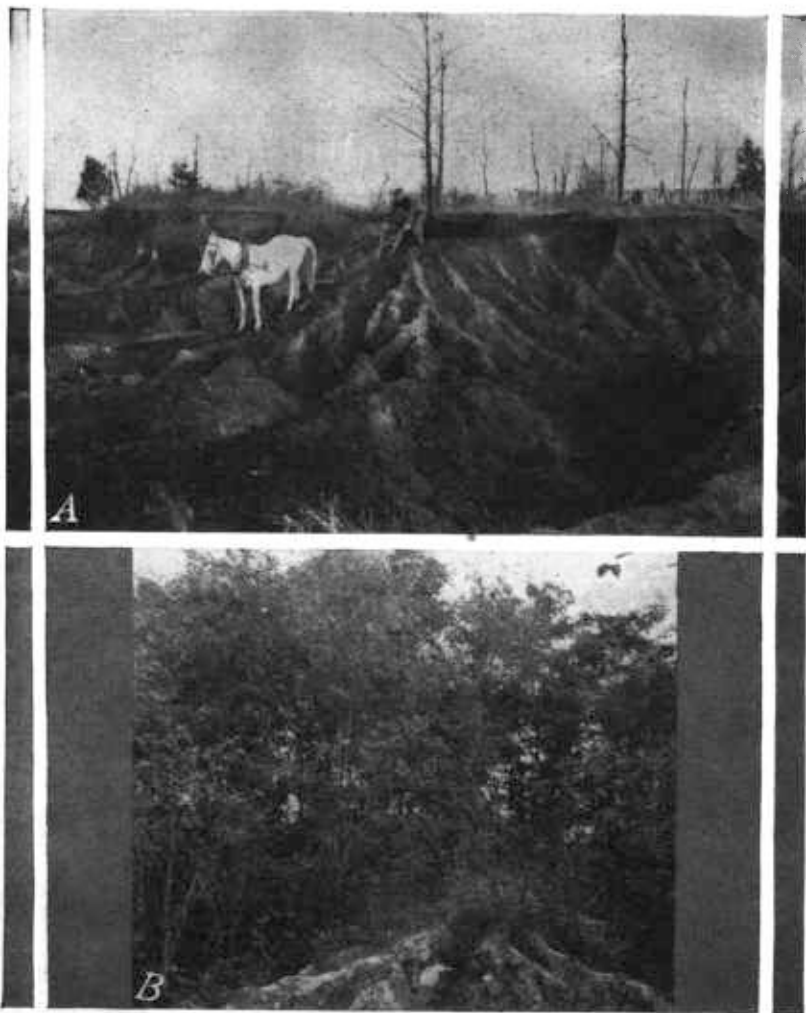


F-280218, F-267315

FIGURE 6.—A, Check dam of densely packed brush with straw at the bottom and a layer of small poles on top bound down with wire to upright poles. B, Placing low check dams at frequent intervals is good practice. They will catch and hold loose dirt and topsoil in which to establish trees or other vegetation.

be higher than 2 feet at that point. The purpose is not to fill up the gully, but to make it possible to heal the surface. The dams are only temporary in character, good for 3 to 6 years, or until the trees or grass can get a good start.

THE SECOND STEP—SLOPE OR GRADE THE BANKS



F-40078A, F-236642

FIGURE 7.—*A*, Plowing down the gully bank to a moderate slope (the angle of repose) loosens the soil and puts topsoil into the gully in preparation for planting the trees and grass. Soil erosion is lessened by sloping the banks. *B*, The same gully fan as that shown in *A*, a few years after it was plowed down and planted with black locust seedlings.

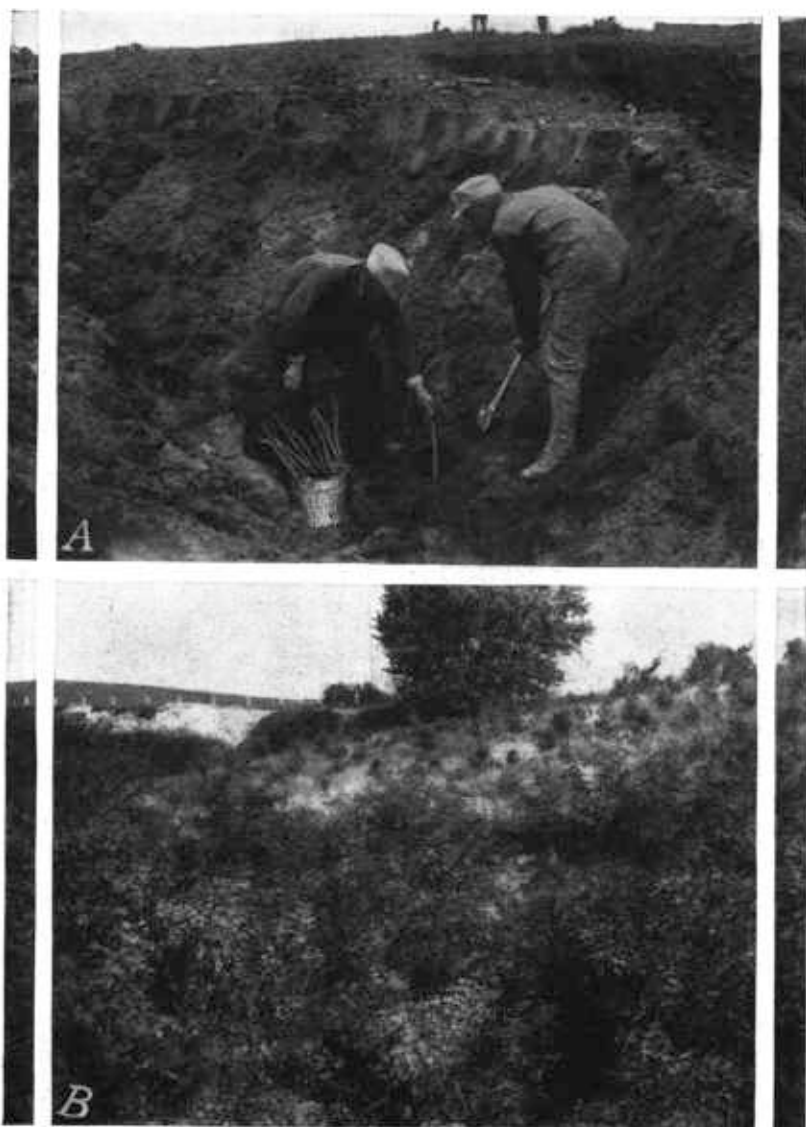
THE SECOND STEP—SLOPE OR GRADE THE BANKS—Continued



F-249792, F-521342, DU PONT POWDER CO.

FIGURE 8.—A, Finishing up by hand the sloping off of sharp gully banks; B, plowing along the gully margin in preparation for planting a strip of trees from 10 to 30 feet in width; C, blasting off the banks of deep gullies by the use of slow-burning powder, as a preparatory step to planting trees or grass.

THE THIRD STEP—PLANT TREES, VINES, OR GRASSES



F-284522, F-280185

FIGURE 9.—A, Planting a farm gully with tree seedlings. One man digs the holes, and the other follows independently (not as shown) and plants the small trees, carrying them in a bucket with water. A grub hoe is a good tool to use, also a mattock, and in loose soil a dibble or planting iron. B, Good planting practice. Pines on the driest ridges, black locust over the main portion of the gully, and willows in the wet and silting gully bottoms. This is regarded as about the most satisfactory combination of trees for such planting and is being used extensively. In the stronger soils the pines are not so essential, while in the poorest soils they and red cedar should be given greater preference.

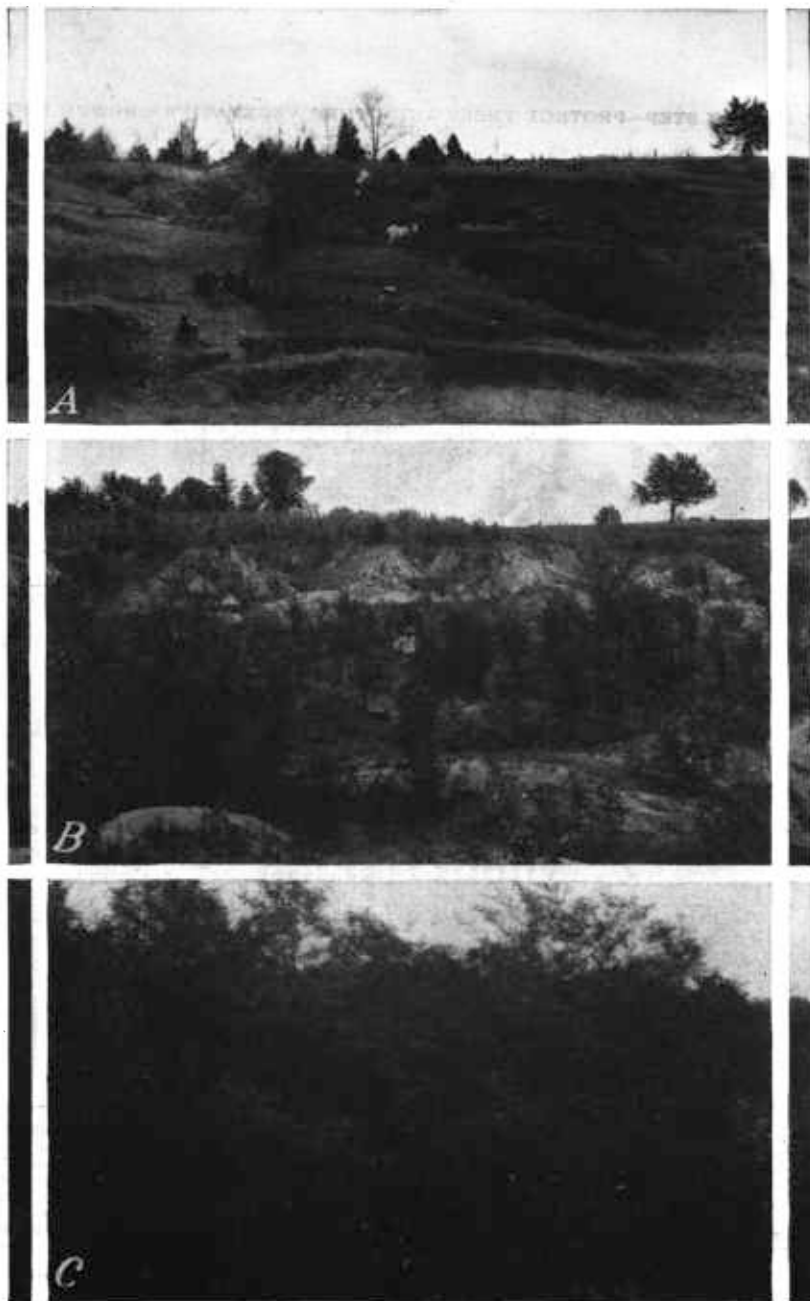
THE FOURTH STEP—PROTECT TREES AND OTHER VEGETATIVE GROWTH FROM INJURY



F-242987, F-251176

FIGURE 10.—A, Steep bank well sodded and held by grass. Bermuda grass is one of the most effective covers for use in stopping soil washing and gullying. It should be used extensively for this purpose. Nearby is a deposit of silt and sand from a recent flood. B, A gully completely stopped on one side with kudzu vine—a rank-growing legume, native of Japan. This vine is hardy as far north as the Ohio River Valley. Rooted cuttings 2 years old can be had for about 1 cent apiece and should be planted out in the early spring. After the second season the growth is commonly vigorous. No trees should be present or planted with kudzu as it will clamber over them and kill them. Another vine widely planted for erosion control is the Japanese honeysuckle.

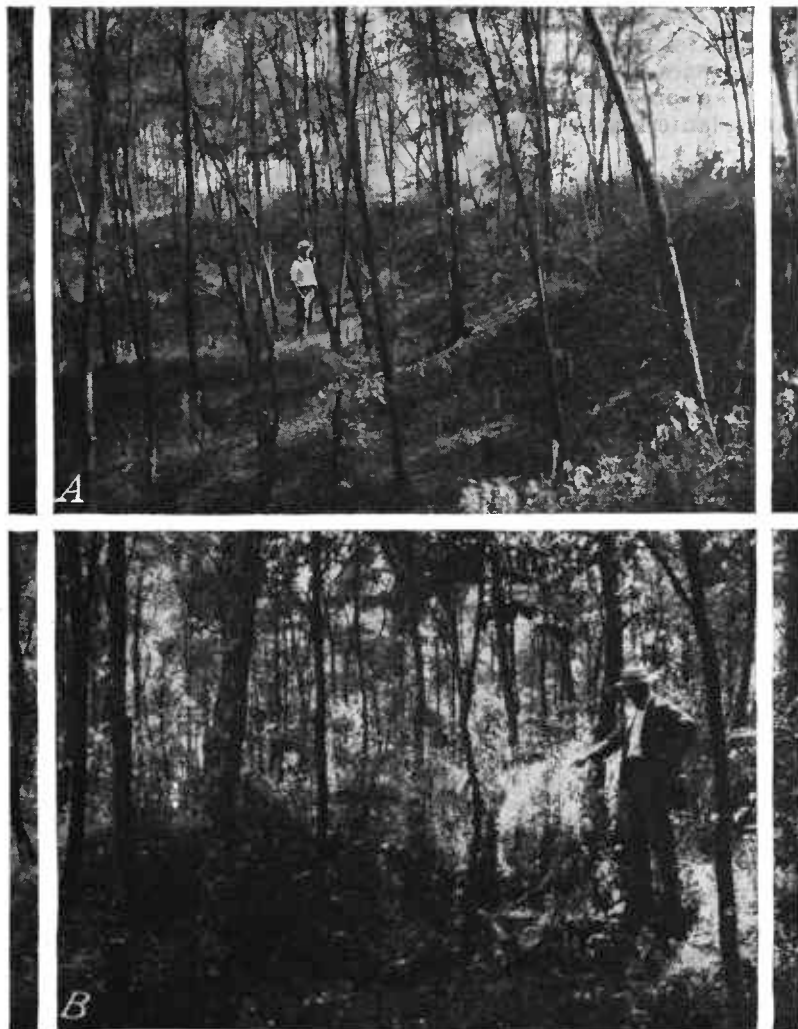
PROGRESSIVE HEALING OF A GULLY



TENNESSEE FOREST SERVICE

FIGURE 11.—A, Gully which for many years had been widening at the expense of the adjacent fields. Building check dams and plowing in the fall of 1918 in preparation for tree planting in the spring of 1919 (western Tennessee). B, How the same gully looked 2 years later. It was planted with black locust seedlings. C, How the gully looked 10 years after it was planted. The trees now completely cover the gully, controlling further erosion and turning a liability into an asset.

SOME GULLIES HEALED BY PLANTED TREES



F-236637, F-236612

FIGURE 12.—A, Twelve years ago this was an active gully eating rapidly into good cotton fields in western Tennessee. Check dams were built, the banks sloped off, and black locust seedlings planted. The trees are valuable for posts, and bluegrass grows well under them. B, In this thrifty stand of black locust trees the man is pointing to one of the brush dams that was built 15 years ago when the gully was treated and planted with trees. The gully is now completely healed.

WRITE FOR COMPLETE INFORMATION

This publication is intended to be merely suggestive of a way in which gullies may be checked. More complete information, including where to get trees and how to plant them, may be had by consulting your local agricultural county agent, who is a representative of the State college of agriculture, your State forestry department, which is probably located at the State capital city, or the Forest Service, United States Department of Agriculture, Washington, D.C. Any of these agencies will be glad also to furnish information with regard to getting up programs for schools or community meetings, lending pictures, lantern slides, film strips, or motion pictures.